ARCS

Remedial Planning Activities at Selected Uncontrolled Hazardous Substance Disposal Sites in Region I

Environmental Protection Agency
Region I

ARCS Work Assignment No. 09-1JZZ

International Data Sciences, Inc. (Lot 135)
Lincoln, RI
RID045364742
TDD No. 9108-136-ATP

Preliminary Assessment
Final Report

August 1992

TRC Companies, Inc.

TAMS Consultants, Inc.
PEI Associates, Inc.
Jordan Communications, Inc.

MS44/2/G

PRELIMINARY ASSESSMENT
INTERNATIONAL DATA SCIENCES, INC.
LINCOLN, RHODE ISLAND

RID045364742

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region I
90 Canal Street
Boston, MA 02203-2211

Work Assignment No.:	09-1JZZ
EPA Region:	I
Contract No.:	68-W9-0033 (ARCS)
TRCC Document No.:	A92-458
TRCC Project No.:	1-636-010-0-1J06
TDD No.:	9108-136-ATP
TRCC Work Assignment Manager:	Michael Asselin
TRCC Task Manager:	John Deline
Telephone No.:	(508) 970-5600
EPA Work Assignment Manager:	Sharon Hayes
Telephone No.:	(617) 573-5709
Date Prepared:	August 19, 1992
Revision:	0 1

TRC COMPANIES, INC.
Boott Mills South
Foot of John Street
Lowell, Massachusetts 01852
(508) 970-5600

TABLE OF CONTENTS

TABLES

FIGURES

INTRODUCTION

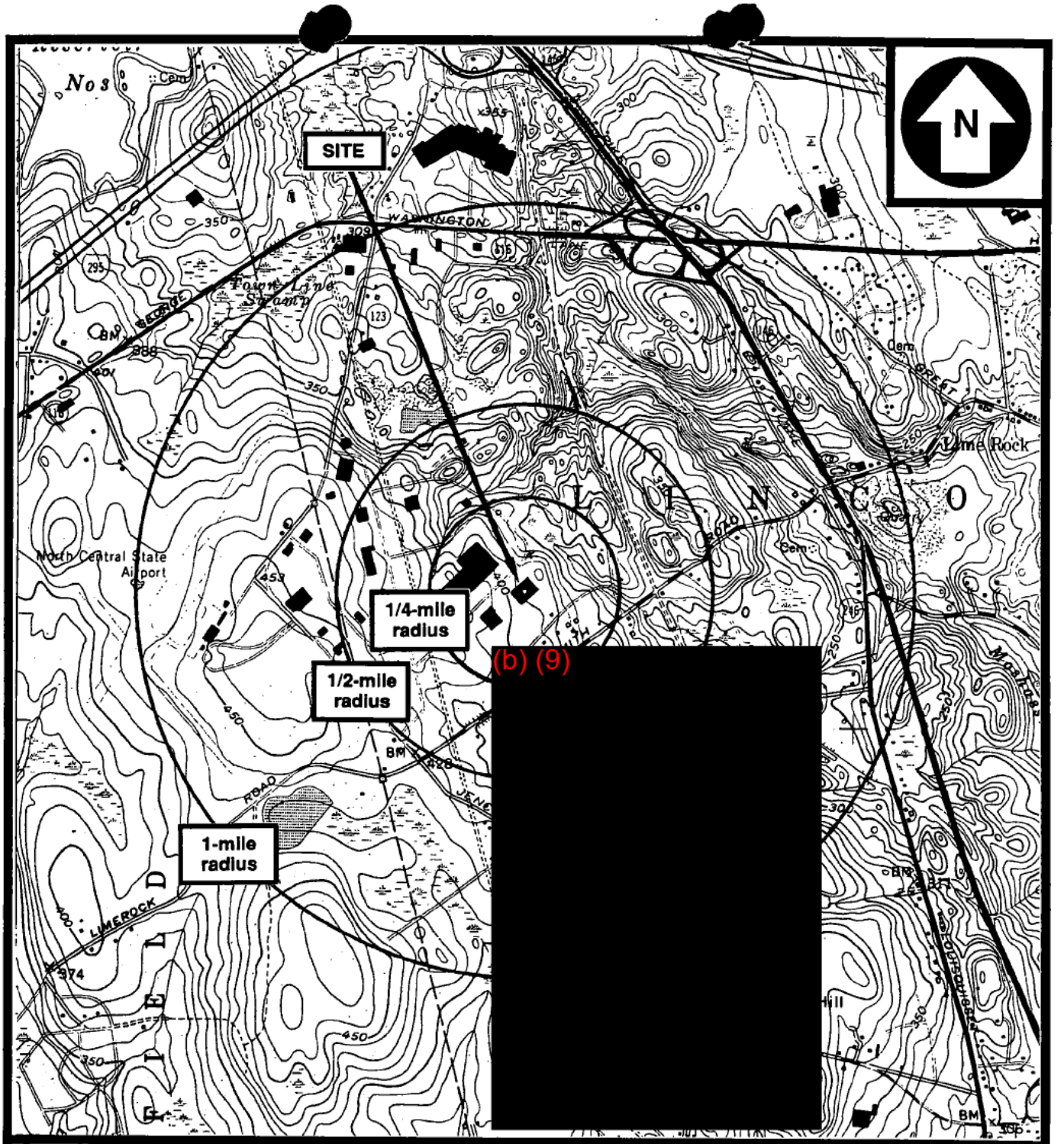
The TRC Companies, Inc. Alternative Remedial Contract Strategy (ARCS/Region I) team was requested by the Region I U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Preliminary Assessment (PA) of the International Data Sciences, Inc. located in Lincoln, Rhode Island. This PA was completed under Work Assignment No. 09-1JZZ and Technical Directive Document (TDD) No. 9108-136-ATP issued to TRC Companies on August 28, 1991.

Background information used in the generation of this report was obtained through file searches conducted at the Rhode Island Department of Environmental Management (RI DEM) and EPA, telephone interviews with town officials and individuals knowledgeable of the property history and characteristics, and conversations with other Federal, State, and local agencies. Information was also collected during the ARCS/Region I on-site reconnaissance which was conducted on March 3, 1992.

This PA follows guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, commonly referred to as Superfund. However, they do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State or local regulations. Preliminary Assessments are intended to provide an initial screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

The International Data Sciences, Inc (IDS) property is located at 7 Wellington Road in the North Central Industrial Park in Lincoln, Rhode Island (Figure 1, Figure 2 and Table 1). The property is located approximately 1600 feet east of the southern intersection of Wellington Road with Powder Hill Drive. This property is comprised of two lots which are identified as Lot 104 and Lot 135 of Plat 28 in the Town of Lincoln's Tax Assessor's office (TRCC,



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' U.S.G.S. QUADRANGLE:
PAWTUCKET, RI-MA, 1949, PHOTOREVISED 1970 AND 1975

0 1000 2000 3000 feet

QUADRANGLE LOCATION

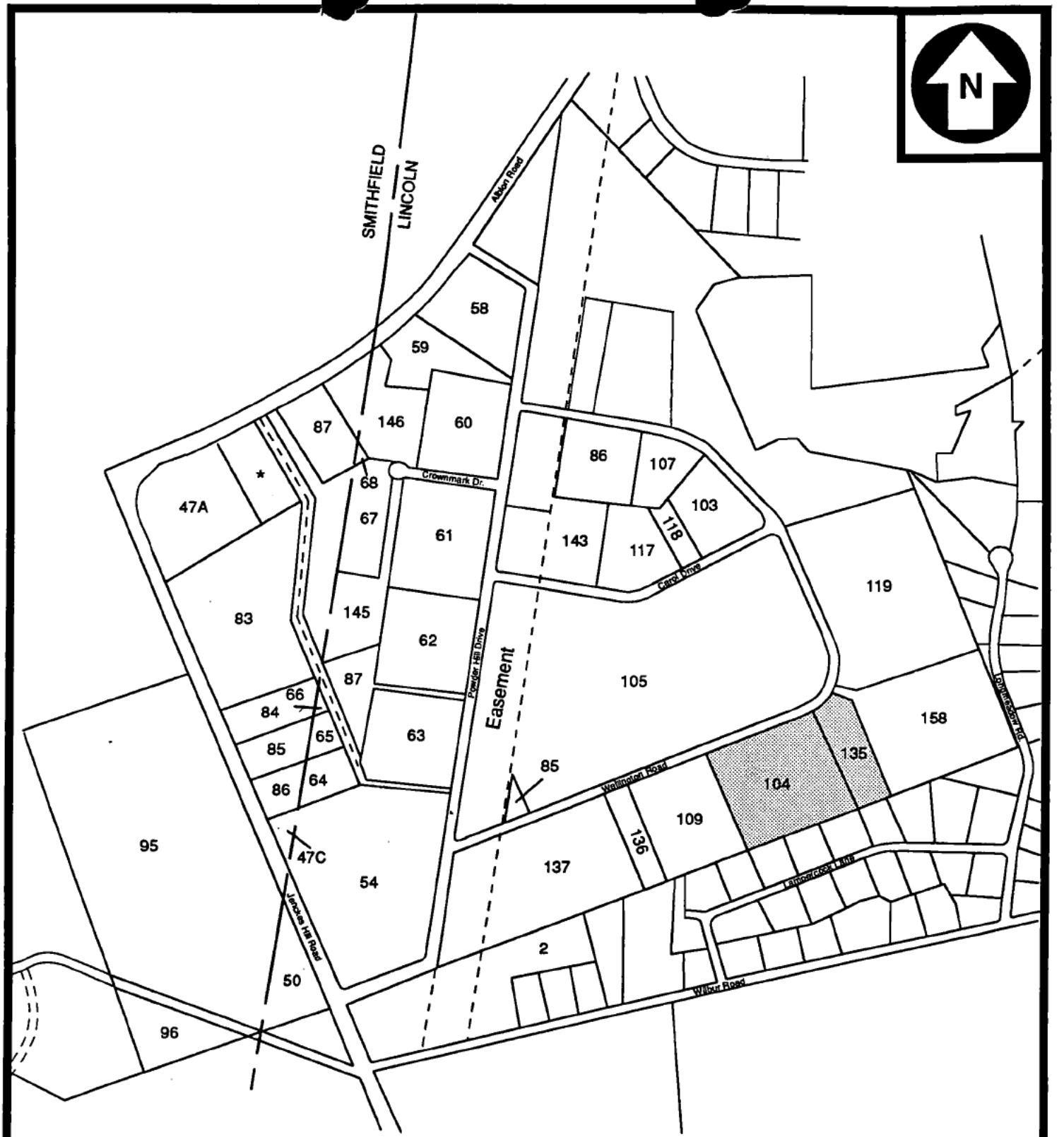
LOCATION MAP

INTERNATIONAL DATA SCIENCES, INC.
LINCOLN, RHODE ISLAND

TRC Companies, Inc.

Figure 1.

MS42/1/G



Not to Scale

Adapted From:
Smithfield Town Map; Plat 45
Lincoln Town Map; Plat 28

143 — Lot Number
* — See Table 1

SITE LOCATION WITHIN THE NORTH CENTRAL INDUSTRIAL PARK

INTERNATIONAL DATA SCIENCES, INC.
LINCOLN, RHODE ISLAND

TRC Companies, Inc.

Figure 2.

A92-1040/G

TABLE 1. NORTH CENTRAL INDUSTRIAL PARK DIRECTORY

Property Lot Numbers	Occupant/Operator
2, 137	Olin Hunt Specialty Products
47A	RI Air National Guard
*	U.S. Army Reserve Maintenance Facility[1]
50, 95[2], 96[2]	Speidel Company/Gorham Company
54, 47C[2]	Avnet Diecasting (Formerly Lincoln Dimentional Tubing)
58	Stackbin Corp.
59	Red Hed Manufacturing Co./Lawton Manufacturing Co.
60	Dot Packaging Group-TCS, Inc.
61	Second Chase Venture (Formerly Globe Distributing)
62	H & A Kaufman Realty Co.
63	Paramount Press, Inc.
64, 86[2]	National Glass Co.
65, 85[2]	Everett Products, Inc.
66, 84[2]	Coating Systems, Inc.
67	Crownmark Corporation
68, 87[2]	Crossley Machine & Tool Co./Jaco Devices
83[2]	Sandvik Co./Madison Industries
85	Blackstone Valley Electrical Company
86, 107	Premier Thread Company
87	Goodyear Steel Container (formerly Gersham Fabricating Co.)
103, 118	Moeller Manufacturing
104, 135	International Data Sciences, Inc.
105	Carol Cable Co.
109, 136	Technical Materials
117	Vennerbeck Stern-Leach
119	Vistawall Architecture Products (Formerly Hedison Manufacturing)
143	Tru-Kay Manufacturing, Inc.
145	Engineered Wall Systems
146	Flink Ink Corp.
158	Lot 158

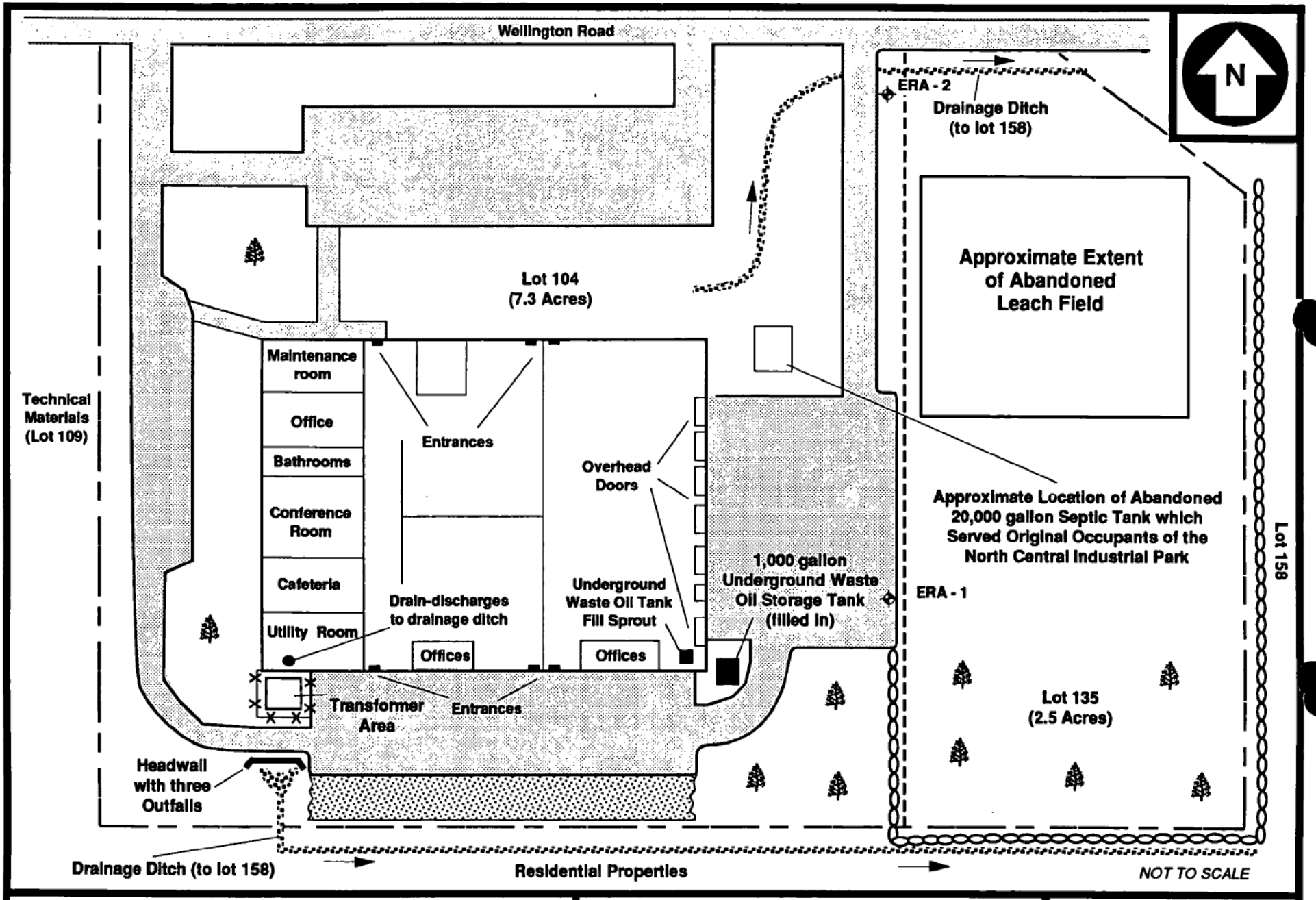
[1]No Lot Number was available for this property
[2]Lot Number from the Smithfield Town Map. All remaining lot numbers are from the Lincoln Town Map.

1992a). The geographic coordinates of the point of access to the property are 41°55'20.8" north latitude and 71°28'32.4" west longitude. This location was determined from the interpretation of the U.S. Geological Survey Topographical Map for the Pawtucket Quadrangle (Deline, 1992a; USGS, 1975a).

IDS occupied the facility located at 7 Wellington Road from 1979 until January 1992, when it moved its operations to 501 Jefferson Boulevard in Warwick, Rhode Island (TRCC, 1992a). IDS purchased the facility on Wellington Road from the A.J Krajewski Co., Inc. IDS manufactured printed circuit boards at this facility while it was active, and continues this business at its new location (TRCC, 1992a).

The IDS property is comprised of two lots, Lot 104 and Lot 135, which cover an area of approximately 7.3 acres and 2.5 acres, respectively (TRCC, 1992a). There is one, two-story building located on Lot 104, which formerly housed IDS' offices and printed circuit board manufacturing operations (Figure 3). This building is 320 feet in length and 160 feet in width, totalling 51,200 square feet in area. One area of the building (approx. 5,120 square feet) is comprised of two floors (a total of 10,240 square feet) of office space, conference rooms, a cafeteria, and bathrooms (TRCC, 1992a). The remainder of the building is devoted to manufacturing and warehouse space. The building is framed with steel beams which are covered with metal sheeting. The floor of the building is made of concrete. Floor drains were observed in the utility room and in the bathrooms during TRCC's reconnaissance of the building (TRCC, 1992a). The floor drain in the utility room discharges to the drainage ditch which is located south of the southwest corner of the building (TRCC, 1992a). The floor drains in the bathrooms are connected to the sanitary sewer system. At the time of TRCC's site reconnaissance, the building was vacant and, in general, appeared clean and well maintained with no staining of the floors observed in any areas (TRCC, 1992a).

Electrical transformers for the building's utilities are located in an area immediately south of the southwest corner of the building. The transformers are on a concrete slab measuring approximately 20 feet by 20 feet, which is surrounded by an 8 foot high chain-link fence



Paved Area
Gravel
Forested
Stone Wall
Property Boundary
Lot Boundary
Flow Direction
Monitoring Well
Fence

SITE SKETCH

INTERNATIONAL DATA SCIENCES, INC.
LINCOLN, RI

TRC Companies, Inc.

Figure 3.

MS4211L

(TRCC, 1992a). These transformers appeared to be in good condition with no leaking of the transformers or staining of the concrete pad observed during TRCC's site reconnaissance (TRCC, 1992a).

There is a paved access road which circles the building from Wellington Road, and paved parking lots are located in front (north), east, and to the rear (south) of the building. The areas that are not paved between the building and Wellington Road and to the west of the building are landscaped. The southern third of the adjacent lot owned by IDS (Lot 135) is heavily wooded, while the northern two-thirds is overgrown field intermixed with young trees and brush. There are no barriers which would restrict access to either of the lots which comprise the IDS property (TRCC, 1992a).

Overall, the IDS property is rather flat and slopes to the east (TRCC, 1992a). The slope of the property increases rapidly along its eastern boundary with Lot 158 (see Figure 2). Based on the U.S. Geological Survey Map for the area, the elevation of the property above mean sea level (msl) decreases from approximately 405 feet along the western boundary of Lot 104 to approximately 385 feet at the boundary of Lot 104 and 135 (USGS, 1975a). The elevation decreases to approximately 360 feet above msl at the eastern boundary of Lot 135 (USGS, 1975). Surface water runoff (including roof drains) is either directed into one of two drainage ditches located on the property, or follows the natural topography of the property, either of which pathways result in surface water runoff flowing onto Lot 158, the vacant lot located immediately east of the IDS property that is owned by the Town of Lincoln (TRCC, 1992a).

The IDS property (Lots 104 and 135) is bordered to the north by Wellington Road (the property located on the opposite side of Wellington Road is owned by the Carol Cable Co.); to the east by Lot 158, a vacant lot owned by the Town of Lincoln; to the south by residential properties accessed by Lampercock Lane; and to the west by Technical Materials, Inc.(TMI) (TRCC, 1992a).

The IDS property is located within the North Central Industrial Park, which covers an area of approximately 248 acres, of which approximately 227 acres are located in Lincoln, Rhode

Island and 21 acres are located in Smithfield, Rhode Island (NUS, 1991). The North Central Industrial Park is comprised of 29 individual properties. It is bordered to the west by the North Central Airport and to the north by the New England Way Industrial Park. Residential neighborhoods are located along the eastern and southern boundaries of the industrial parks. The nearest residences are located approximately 100 feet south of the IDS property on Lampercock Lane and have private wells that have been shut down due to contamination (TRCC, 1992b; RI DEM, 1982).

Three potential source areas were identified during TRCC's reconnaissance of the IDS property. Two of the potential source areas are the abandoned septic tank and leach field that served the original occupants of the industrial park. The third potential source area is a former underground storage tank that was used for storage of waste oil by the A J. Krajewski Co., who occupied the building prior to IDS. The following descriptions provide detailed information on each of the potential source areas identified during the site reconnaissance.

A septic tank with leach field was installed in 1964 to serve the industrial park's first occupant, a brass mill located at the western end of Wellington Road (RI DEM, 1982). The septic tank had a capacity of 20,000 gallons and the leach field measured approximately 200 feet by 200 feet (RI DEM, 1982; TRCC, 1992a). The septic tank and leach field were abandoned in 1971 after a sewage treatment plant for the industrial park was constructed at the present site of the animal shelter, which is located approximately 1,500 feet north-northwest of IDS (RI DEM, 1982). The sewage treatment plant was abandoned in 1977, when the industrial park sanitary sewer system was connected to the Blackstone Valley Sewer Commission interceptor (RI DEM, 1982).

In December 1980, the Town of Lincoln collected a sample of the contents of the septic tank and soil samples from the leach field (RI DEM, 1982). Analyses performed by a private laboratory indicated that the septic tank sample contained acetone, butanol, methylpropanol, methylisobutyl ketone, toluene, ethylbenzene, dimethylbenzene, and various isomers (RI DEM, 1982). Analysis of the soil samples from the leach field indicated the presence of dichlorobenzene, ethylbenzene, and other unnamed hydrocarbons (RI DEM, 1982). However,

the major chlorinated hydrocarbon contaminants that were found in downgradient private wells during a 1980-1981 investigation conducted by the RI DEM were not found in either the septic tank or leach field samples (RI DEM, 1982). The nearest of the wells in which contaminants were detected during this study is located approximately 400 feet south of IDS (see Figure 1).

The RI DEM sampled the contents of the septic tank on February 20, 1981. At the time of this sampling event, the 20,000-gallon septic tank was estimated to be approximately half full. The results of the analysis of this sample did not reveal any significant levels of chlorinated hydrocarbons (RI DEM, 1982).

Based on recommendations made by the RI DEM, the remaining contents of the septic tank were removed and disposed of at a public treatment works in 1982. Subsequently, the tank was broken up and filled in (TRCC, 1992a). The accompanying leach field on Lot 135 remains intact (TRCC, 1992a).

The third potential source area identified during the reconnaissance of the site is an area immediately east of the southeastern corner of the building which was the location of an underground storage tank (see Figure 3). This storage tank had a capacity of 1,000 gallons and was used by the A. J. Krajewski Co. to store waste oil (TRCC, 1992a). This tank was removed between 1989 and 1991 and the remaining excavation was filled in with sand (TRCC, 1992a). No information was available regarding the condition of this tank, the quantity of waste oil remaining in the tank at the time of its removal, or the presence/absence of any stained/contaminated soils surrounding the tank (TRCC, 1992a).

SITE ACTIVITY/HISTORY

IDS is located in the North Central Industrial Park, which was developed in 1962 by the Second Pawtucket Area Industrial Development Foundation (NUS, 1991). Prior to 1962, the land on which the industrial park is located was owned by the State of Rhode Island and was undeveloped.

Records at the Town of Lincoln Tax Assessors office indicate that the Second Pawtucket Area Industrial Foundation was the owner of Lots 104 and 135 until 1973 and 1978, respectively. Records also indicate that Lot 135 and the adjacent lot (Lot 158) owned by the Town of Lincoln were once part of a larger lot (Lot 49a) that was divided (TRCC, 1992a). In 1964, the Second Pawtucket Area Industrial Foundation installed a 20,000-gallon septic tank with leach field on Lots 104 and 135, respectively, to serve the first occupant of the industrial park, a brass mill located at the western end of Wellington Road (RI DEM, 1982). This septic system served the brass mill, and several other businesses who, subsequently, began operations in the industrial park and were connected to the system, until 1971. In 1971, this septic system was abandoned with the construction of a new sewage treatment plant (located at the site of the present animal shelter) for the industrial park (RI DEM, 1982).

In 1973, the A. J. Krajewski Co. purchased and developed Lot 104 (TRCC, 1992a). The A. J. Krajewski Co. constructed a building on Lot 104 in which it manufactured several products using a process that involved plastic injection molding. The A. J. Krajewski Co. maintained operations at this building until 1978, when it moved out and sold the property to IDS (TRCC, 1992a). The information available regarding the specific manufacturing operations employed by the A. J. Krajewski Co. was vague, and no conclusions could be drawn about the wastes that may have been generated at the facility as a result of these operations (TRCC, 1992a).

In addition to purchasing the A. J. Krajewski property in 1978, IDS also purchased Lot 135 from the Second Pawtucket Area Industrial Foundation to allow for future expansion of their operations (TRCC, 1992a). However, IDS did not expand operations at this location and Lot 135 was not developed (TRCC, 1992a).

IDS began operations in 1979, after renovating the former A. J. Krajewski facility to accommodate IDS' manufacturing operations (TRCC, 1992a). IDS is a manufacturer of printed circuit boards (TRCC, 1992a). According to records, approximately one to two 55-gallon drums of 1,1,1-trichloroethane (1,1,1-TCA) were used per year in manufacturing operations employed by IDS at the facility (TRCC, 1992a; RI DEM, 1987; RI DEM, 1989).

Spent 1,1,1-TCA was stored in 55-gallon drums until collected by a solvent recycler (TRCC, 1992a). IDS occupied this building until January 1992, when it moved operations to a smaller facility in Warwick, Rhode Island. As of the date of the site reconnaissance (March 3, 1992), the building remained unoccupied and IDS retained ownership of the property (Lots 104 and 135) (TRCC, 1992a).

Reviews of RI DEM and U.S. EPA files did not indicate that, with the exception of the Site Discovery filed for International Data Sciences, Inc. by NUS Corporation for EPA in June 1991, there has been any regulatory actions initiated against IDS. In addition, no records were found indicating that any documented releases of hazardous substances had occurred at the IDS facility. IDS did, however, file hazardous waste generator reports with the RI DEM in 1987 and 1989 (RI DEM, 1987; RI DEM; 1989).

However, regulatory activities have been associated with the North Central Industrial Park and several of its other occupants. A historical summary is provided below.

- In December 1980, the Town of Lincoln collected a sample of the contents of the septic tank and soil samples from the leach field (RI DEM, 1982). Analyses performed by a private laboratory indicated that the septic tank sample contained acetone, butanol, methylpropanol, methylisobutyl ketone, toluene, ethylbenzene, dimethylbenzene, and various isomers (RI DEM, 1982). Analysis of the soil samples from the leach field indicated the presence of dichlorobenzene, ethylbenzene, and other unnamed hydrocarbons (RI DEM, 1982).

- In 1981 and 1982, an investigation of ground water contamination in the area of the North Central Industrial Park was conducted by the RI DEM (RI DEM, 1982). This investigation was conducted after organic chemical contaminants were found in 74 private wells during an Emergency Well Testing Program initiated in 1980 by the Rhode Island Department of Health. In 1981, through efforts by the Town of Lincoln, public water lines were installed throughout the affected area, making public water available to all of the residences having contaminated wells (RI DEM, 1982).

- In 1981, the RI DEM collected a sample of the septic tank contents. Analytical results from this sampling event indicated that xylene, ethylbenzene, methylene chloride, toluene, 1,1-dichloroethane, and 1,2-dichloroethene were present in the septic tank contents. Based on recommendations made by the RI DEM, the remaining contents of

the septic tank (approximately 10,000 gallons) were pumped out and disposed of at a public treatment works in 1982. Subsequently, the tank was demolished and filled in.

- In 1990, IDS retained Environmental Resource Associates, Inc. (ERA) of Warwick, Rhode Island to conduct an investigation of the IDS property (ERA, 1990). As part of this investigation, two monitoring wells (ERA-1 and ERA-2) were installed on the IDS property (see Figure 2) to evaluate ground water beneath the site. A monitoring well (CC-24) which had been installed upgradient of the IDS site on Carol Cable Co. property (located opposite to IDS on Wellington Road) during the 1982 RI DEM study was used to determine ground water flow at the site and evaluate ground water quality upgradient of the site (ERA, 1990). A soil sample was collected from one of the borings (B-1) used to install a monitoring well (ERA-1), and ground water samples were collected from each of the monitoring wells. Each of these samples were analyzed for volatile organic compounds (VOCs). Copies of the boring logs and analytical results for this investigation are included in Appendix A. The analytical results indicated the presence of acetone (60 parts per billion) in the ground water sample collected from ERA-2 (ERA, 1990). Acetone was also detected in the samples from the other two monitoring wells, but at levels below the detection limits (30 parts per billion) achieved for these samples (ERA, 1990). Acetone was also detected in the soil sample from boring B-1 (ERA, 1990). It should be noted that acetone was one of the contaminants detected in a sample of the contents of the abandoned septic tank collected by the Town of Lincoln in December 1980 (RI DEM, 1982).

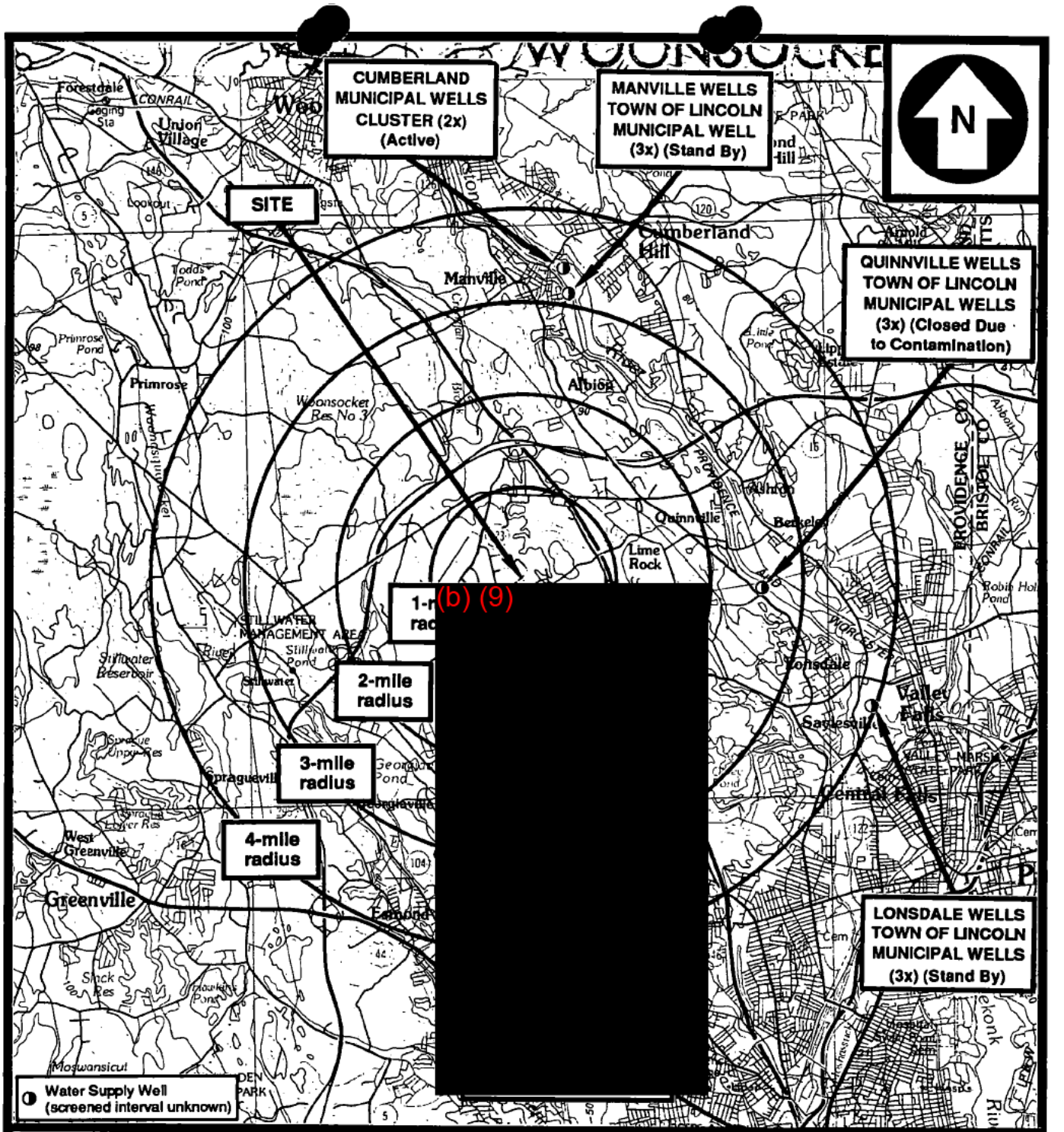
ENVIRONMENTAL SETTING

IDS is situated in the North Central Industrial Park, which is located in a rural area. The soil at IDS is classified as UD: Udorthents - Urban Land Complex (USDA, 1981). The surficial geology has been mapped as Quaternary Ground Moraine and is described as a "till of at least two types: one is loose, sandy, and generally light gray with a thin oxidation zone; and the other is compact, slightly indurated, and brownish" (USGS, 1949a). The bedrock geology is mapped as Esmond Granite and is described as a "light-gray, pink, and flesh-colored medium- to coarse-grained slightly gneissic granite containing microperthite (30 to 45 percent), albite (20 to 30 percent), quartz (15 to 45 percent), and biotite (1 to 7 percent)" (USGS, 1949b). Maps and well records of the area indicate that bedrock depths may range from 5 to 25 feet (RI DEM, 1982).

Two borings (copies of boring logs are included in Appendix A) and, subsequently, monitoring wells were installed in March 1989 at the property along the property boundary of Lot 104 with Lot 135 during the investigation conducted by ERA (ERA, 1990). One boring (B-1) contained brown, fine to medium sand and gravel to a depth of 8 feet below the ground surface. Very compact, gray, silty, fine sand was present below this layer to a depth of 13.3 feet below the ground surface, at which depth bedrock was encountered (ERA, 1990). Brown, fine to coarse sand, and gravel was encountered in the other boring (B-2) to a depth of 3 feet below the ground surface. Gray silty till was present below this layer to a depth of 7.5 feet below the ground surface, at which depth bedrock was encountered (ERA, 1990).

Ground water beneath the site is classified as GB (Balogh, 1992a). Ground water in this classification is defined as that which is located within highly urbanized areas of industrial activity where public water supply is available and where the ground water may or may not be suitable for direct human consumption due to waste discharges, spills or leaks of chemicals, land impacts, etc. (Balogh, 1992a). During the 1982 study conducted by the RI DEM, ground water flow through the unconsolidated strata in the North Central Industrial Park was determined to be in an east to east-southeast direction (RI DEM, 1982). The results of ERA's 1990 investigation indicated that ground water flowed in an east northeasterly direction across the site (ERA, 1990). ERA's investigation also indicated that the depth to ground water at the site was approximately 6 to 8 feet below the ground surface (ERA, 1990).

Ground water use within a four-mile radius of IDS consists of one public well cluster in Cumberland and a number of private wells dispersed throughout Lincoln (population 18,045), Smithfield (population 19,163), North Smithfield (population 10,497), Cumberland (population 29,038), and North Providence (population 32,090) (USDS, 1991). Figure 4 identifies the location of the Cumberland well cluster, which is approximately 3.5 miles north of IDS (USGS, 1975a). Cumberland's water supply system serves approximately 27,006 residents (approximately 93 percent of the total population) (Deline, 1992e; USDC, 1991; RIDA, 1988). This public well cluster serves approximately 6,320 people (approximately 23.4 percent of the total number of residents served by the Cumberland public water supply system) (Deline, 1992e; USDC, 1991; RIDA, 1988). Cumberland receives the remainder of



BASE MAP IS A PORTION OF THE FOLLOWING 30' x 60' U.S.G.S. QUADRANGLE: PROVIDENCE, RI-MA-CT, 1984. NOTE: UPPER PORTION OF THE MAP IS AN ENLARGED SECTION OF THE U.S.G.S. QUADRANGLE MAP OF BOSTON, MA-NH-CT-RI-ME, 1961, ORIGINAL SCALE 1:250,000.

0 5,000 10,000 15,000

scale in feet

FOUR-MILE RADIUS MAP

INTERNATIONAL DATA SCIENCES, INC.
LINCOLN, RHODE ISLAND

TRC Companies, Inc.

Figure 4.

MS42/1/H

its water supply from two other well clusters which are located greater than four miles from the IDS property (Deline, 1992e; USGS, 1975a; USGS, 1975d).

The nearest private well to IDS is believed to be located approximately 400 feet south of the property (see Figure 1). Use of this well was discontinued in 1981 after a sampling event conducted in December 1980 indicated the presence of organic contaminants. The location of the closest private well currently in use was not determined.

The estimated distribution of the population utilizing private wells for their water supply within a four-radius of the IDS property is summarized in Table 2. The number of private well users within a one mile radius of IDS was determined based on the RI DEM Report (RI DEM, 1982; Arnold, 1992a; Arnold, 1992b). The rationale used in determining the distribution for the remaining distance rings is presented in the following discussion.

The Town of Lincoln's public water system is available in all areas of the town and is capable of serving all residences who desire to be connected to the public water supply (Lincoln, 1991). However, private wells remain the source of water for approximately 13 percent of the population (RIDA, 1988; Lincoln, 1991). The public water system extends to all areas of Lincoln, and those areas served by the public system and those served by private wells are not clearly delineated (Lincoln, 1991). Therefore, for the purpose of determining the population utilizing private wells for their water supply, it is assumed that the distribution of residences with private wells is uniform throughout the Town of Lincoln.

Residences located in the southeastern areas of North Smithfield along the borders with Smithfield and Lincoln are generally served by private wells (Deline, 1992d). Therefore, it is assumed that all residences located in this area are served by private wells, even though overall approximately 67 percent of the residents in North Smithfield are served by private wells (RIDA, 1988).

In Smithfield, approximately 24 percent of the population is served by private wells (RIDA, 1992). Similar to Lincoln, there is no clear definition between those areas served by the

TABLE 2. ESTIMATED PRIVATE AND PUBLIC WELL USE WITHIN A FOUR-MILE RADIUS OF INTERNATIONAL DATA SCIENCES, INC.

Distance Ring (miles)	Town	Private Well Users	Public Well Users	Total
0.00-0.25	Lincoln	119		119
0.25-0.50	Lincoln	69		69
0.50-1.00	Lincoln	49		
	Smithfield	6		55
1.00-2.00	Lincoln	205		
	Smithfield	71		
	N. Smithfield	11		287
2.00-3.00	Lincoln	288		
	Smithfield	458		
	N. Smithfield	348		
	Cumberland	121		1,215
3.00-4.00	Lincoln	581		
	Smithfield	631		
	N. Providence	0		
	N. Smithfield	441		
	Cumberland	356	6,320	8,329
TOTAL				**10,074**

sources:
Balogh, 1992b
Deline, 1992b
USDC, 1991
RIDA, 1988

public water system and those that are not, and it is assumed that the distribution of residences with private wells is uniform throughout the Town of Smithfield (Balogh, 1992c; Balogh, 1992d; Balogh, 1992e; Deline, 1992b; RIDA, 1988).

Approximately 7 percent of the population of Cumberland and 0 percent of the population of North Providence are served by private wells for their water supply (RIDA, 1988; Balogh, 1992b; Balogh, 1992e; Deline, 1992b). Again, in the town of Cumberland, those areas predominantly served by private wells are not easily distinguished from those that are served by the public water system, and therefore it is assumed that the distribution of residences with private wells is uniform throughout the town (Balogh, 1992b; Balogh, 1992e; Deline, 1992b;).

The source of the public water for the towns of Lincoln, Smithfield, and North Providence is the Scituate Reservoir, which does not lie along the 15-mile surface water pathway from the probable point of entry (PPE) to surface water for runoff from the IDS property (Balogh, 1992c; Balogh, 1992d; Balogh, 1992e; Balogh, 1992f; Deline, 1992c; USGS, 1975a; USGS, 1975c; TRCC, 1992a).

The total number of people served by private wells within a four-mile radius of the IDS site is estimated to be 3,754 (Deline, 1992b; RIDA, 1988). The distribution of residents utilizing private wells is summarized in Table 2. The total number of residents served by ground water sources drawn within a four-mile radius of the IDS site is approximately 10,074 (Deline, 1992b; USDC, 1991; RIDA, 1988).

The Town of Lincoln has six public wells located within four miles of the site. Three of these wells (Quinville Wells) have been closed due to contamination from an unidentified source and three (Manville Wells) have been placed on standby (TRCC, 1992b).

The North Central Industrial Park lies within the Narragansett Bay Drainage Basin (USDA, 1981). All surface water runoff from the IDS property flows onto Lot 158, which is located immediately east of IDS (TRCC, 1992a). Lot 158 is located in a low-lying area of the industrial park onto which the surface water runoff from several other properties in the

industrial park is directed (TRCC, 1992c). Surface water runoff flowing onto Lot 158 collects in a depressed area resembling a lagoon located along the northern boundary of this property (TRCC, 1992c). It is at this area that the PPE to surface water from source areas at the IDS property occurs (TRCC, 1992a). The distance from the site to the PPE is approximately 200 feet (TRCC, 1992a; TRCC, 1992c). Water collecting in this depressed area then flows into a wetland which begins along the southern boundary of Lot 158 and extends south towards the intersection of Lampercock Lane with Longmeadow Road. Residential properties located along Longmeadow Road and Lampercock Lane border this wetland. Water from this wetland then forms an unnamed stream which flows under Lampercock Lane, Longmeadow Road, and then Wilbur Road (formerly Smith Road) before entering a wetland located south of Wilbur Road. The distance along the surface water pathway from the PPE to this wetland is approximately 0.5 miles (Deline, 1992c). The stream that begins in the wetland on the southern boundary of Lot 158 flows within 100 feet of several residences located on Lampercock Lane and Longmeadow Road before it enters the wetland to the south of Wilbur Road (TRCC, 1992c). During the site reconnaissance of the Lot 158, Town of Lincoln site (February 13, 1992) several children's toys were observed on the banks of this stream in proximity of the residences indicating that children play in this stream (TRCC, 1992c).

From the wetland, surface water flows in an east to northeastern direction into the southern edge of a quarry and, subsequently, drains into the Moshassuck River (Deline, 1992c; USGS, 1975a). Surface water flows along the Moshassuck River to where it enters Butterfly Pond, approximately 2.7 miles from the site. From Butterfly Pond, water flows to Barney Pond, approximately 3.6 miles along the pathway from the site. From Barney Pond, surface water flows southeast to the adjacent Bleachery Pond (USGS, 1975a). From Bleachery Pond, surface water continues along the Moshassuck River in a southerly direction through the cities of Pawtucket and Providence and ultimately drains into the Providence Harbor and Providence River, approximately 10.1 miles along the pathway from the site (USGS, 1970a).

The terminus of the 15 mile surface water pathway is Sabin Point (Deline, 1992d). The Moshassuck River contains several species of fresh fish, including trout, that may be

harvested by sport fishermen, and is considered an active fishery (Balogh, 1992h). No drinking water intakes were identified along the 15-mile downstream pathway from IDS (Balogh, 1992b; Balogh, 1992c; Balogh, 1992d; Balogh, 1992e; Balogh, 1992f; Deline, 1992c; USGS, 1975a; USGS, 1975c; TRCC, 1992a).

The area surrounding the North Central Industrial Park is not a critical habitat for federally designated endangered or threatened species, nor are federally endangered species believed to presently live or are predicted to live in the area (Balogh, 1992h). It is, however, an area inhabited by state endangered or threatened species and contains Natural Areas (Lime Rock Preserve) and wetlands (Balogh, 1992h). Additionally, the Lincoln Woods State Park is within four miles of the IDS property (Figure 4; USGS, 1975a). No information was available about designated areas of wellhead protection located within four miles of the IDS property (Balogh, 1992a). Road signs posted along route 116, however, indicate that the area around the North Central Industrial Park is a watershed area.

The IDS facility is currently inactive and there are no workers onsite (TRCC, 1992a). Six residential properties located along Lampercock Lane to the south of IDS abut the lots (Lot 135 and Lot 104) on which the IDS facility is located (TRCC, 1992a). The boundaries of each of these properties are greater than 200 feet from the three potential source areas identified at the IDS property (TRCC, 1992a). However, the unnamed stream that begins in the wetland on Lot 158 flows within 100 feet of several houses located at the intersection of Lampercock Lane with Longmeadow Road (TRCC, 1992c). As discussed in the Site Activity/History Section, a total of six soil samples were collected by the RI DEM during two sampling events conducted in August and December 1989 from the adjacent property (Lot 158) on which the PPE to surface water occurs (RI DEM, 1990). Analytical results indicated the presence of PCBs in one soil sample at a concentration of 24 ppm, and lead in two of the soil samples at a concentration of 0.06 ppm (RI DEM, 1990). As mentioned previously, several children's toys were observed discarded along this stream near the residences by which it passes, indicating that children are playing in this stream (TRCC, 1992c). The distance along the surface water pathway from the PPE to surface water to these residences is approximately 1,400 feet (Deline, 1992c).

Regularly occupied buildings on adjacent properties (Vistawall Architectural Products to the north and Technical Materials, Inc. to the west) are located greater than 200 feet from potential source areas on the IDS property (TRCC, 1992a). There are no residences, schools, or daycare centers located onsite or within 200 feet of potential source areas (TRCC, 1992a, Deline, 1992b). The closest residence to IDS is located within 100 feet of the southern boundary of the IDS property (TRCC, 1992a). The population residing within a four mile radius of the IDS site is summarized in Table 3 (Balogh, 1992b; Deline 1992b). The total residential population within a four-mile radius of IDS is estimated to be 22,396 (Balogh, 1992b; Deline, 1992b).

According to the Flood Insurance Rate Map for the Town of Lincoln, Rhode Island, the IDS site is located in a flood zone area classified as Zone C (FEMA, 1982a). Areas classified as Zone C are defined by the Federal Emergency Management Agency as those of minimal flooding which are above the limits of the 100-year to 500-year flood plain (FEMA, 1982b).

SUMMARY

The Second Pawtucket Area Industrial Foundation installed a septic tank and leach field on the present IDS property in 1964 to serve the first occupants of the North Central Industrial Park. This septic system was abandoned in 1971 upon the construction of a new waste water treatment plant for the industrial park at the present location of the animal shelter (RI DEM, 1982). The IDS property was further developed in 1973, when the A. J. Krajewski Co. constructed a building on Lot 104 to house their manufacturing operations which involved plastic injection molding. The A J. Krajewski Co. occupied this facility until 1978, when it sold the building and land (Lot 104) to IDS. Little information was available regarding wastes generated by the A. J. Krajewski Co. That same year IDS also purchased the adjacent lot (Lot 135) on which the abandoned leach field is located (TRCC, 1992a).

IDS maintained a printed circuit board manufacturing operation at this facility until January 1992, when it moved to a smaller facility in Warwick, Rhode Island. During its occupancy of this facility, IDS used an average of one to two 55-gallon drums of 1,1,1-trichloroethane per

TABLE 3. ESTIMATED RESIDENTIAL POPULATION WITHIN A FOUR-MILE RADIUS OF INTERNATIONAL DATA SCIENCES, INC.

Distance Ring (miles)	Town	Population per town	Total Population
0.00-0.25	Lincoln	119	119
0.25-0.50	Lincoln	69	69
0.50-1.00	Lincoln	376	
	Smithfield	22	398
1.00-2.00	Lincoln	1,570	
	Smithfield	293	
	North Smithfield	11	1,874
2.00-3.00	Lincoln	2,215	
	Smithfield	1,907	
	North Smithfield	348	
	Cumberland	1,721	6,191
3.00-4.00	Lincoln	4,465	
	Smithfield	2,628	
	North Providence	1,138	
	North Smithfield	441	
	Cumberland	5,073	13,745
TOTAL			**22,396**

sources:
Balogh, 1992b
Deline, 1992b
USDC, 1991

year. All spent solvent was stored in drums until it was collected by a solvent recycler. A sample of the contents of the abandoned septic tank and soil samples from the accompanying leach field were collected by the Town of Lincoln in 1980. Analytical results from this sampling event indicated that acetone, butanol, methylpropanol, methylisobutyl ketone, toluene, ethylbenzene, and other unnamed hydrocarbons were present in the septic tank sample. Dichlorobenzene, ethylbenzene, and other unnamed hydrocarbons were reported to be present in the soil samples from the leach field.

In 1990, an investigation was conducted at the IDS property by a private consulting firm retained by IDS. The results of this investigation indicated that elevated levels of acetone were present in ground water at the IDS property (acetone was also detected in a sample collected of the contents of the abandoned septic tank).

During the site reconnaissance performed by TRCC personnel, a third potential source area was identified. This potential source area is the former location of an underground storage tank that was installed by the A. J. Krajewski Co. This tank had a capacity of 1,000-gallons and, according to information obtained during the site reconnaissance, was used for the storage of waste oil. This tank was removed between 1989 and 1991 and the remaining excavation was filled in with sand. No other information was available regarding the history of this tank or its condition at the time of removal.

The facility is located in the North Central Industrial Park, Lincoln, Rhode Island. The area surrounding the industrial park is rural and is used for a combination of industrial, commercial, and residential purposes. Many private wells were discontinued as a result of ground water contamination, however supplied water is available. Most of the population within 4 miles of the facility obtains drinking water from public sources located greater than 4 miles from the facility.

The analytical results of samples collected from the abandoned septic tank and leach field suggest that soils in these areas may be a source of contamination for ground water at the site. A ground water sample collected from a monitoring well on the IDS property by ERA

during their 1990 investigation contained an elevated level of acetone. Based on this sampling data and the fact that there is little information available on the underground storage tank that was previously used to store waste oil, TRCC recommends continued investigative work under CERCLA at the IDS property.

REFERENCES

Arnold, 1992a (TRCC). Project Note: Private wells adversely affected by ground water contamination in the vicinity of the North Central Industrial Park. Smithfield/Lincoln, RI. August 13, 1992.

Arnold, 1992b (TRCC). Project Note: Private well users receiving ground water within a four mile radius of IDS. August 13, 1992.

Balogh, 1992a (TRCC). Telecon memo with Ernest Panciera, Water Resources Department, RI DEM, February 26, 1992. RE: Ground Water Classification.

Balogh, 1992b (TRCC). Telecon memo with the U.S. Census Bureau Data Center, February 26, 1992. RE: Population figures for the towns of Lincoln, Smithfield, North Smithfield, Cumberland, and North Providence.

Balogh, 1992c (TRCC). Telecon memo with the Smithfield Water Department, February 26, 1992. RE: Water service to the town of Smithfield.

Balogh, 1992d (TRCC). Telecon memo with the Greenville Water District, February, 26, 1992. RE: Water service to the town of Smithfield.

Balogh, 1992e (TRCC). Telecon memo with the East Smithfield Water Department, February 26, 1992. RE: Water service to the towns of Smithfield and North Providence.

Balogh, 1992f (TRCC). Telecon memo with the Providence Water Supply Board, February 27, 1992. RE: Water service to the town of North Providence.

Balogh, 1992g (TRCC). Telecon memo with USGS, Providence, RI, March 6, 1992. RE: Flow rate information for the Moshassuck River.

Balogh, 1992h (TRCC). Telecon memo with Rick Enser, National Heritage Program, RI DEM, March 3, 1992. RE: Sensitive environments and endangered species.

Deline, 1992a (TRCC). Project note: Latitude and longitude calculations for the International Data Sciences site, February 25, 1992.

Deline, 1992b (TRCC). Project note: House count and population within a four-mile radius of the International Data Sciences site, March 19, 1992.

Deline, 1992c (TRCC). Project note: Determination of 15-mile downstream surface water pathway from International Data Sciences site, February 25, 1992.

Deline, 1992d (TRCC). Telecon memo with Mr. Decelles, Superintendent of the North Smithfield Water and Sewer Department, March 16, 1992. RE: Water service in North Smithfield.

Deline, 1992e (TRCC). Telecon memo with Neil Fiorio of the Cumberland Water Department, March 17, 1992. RE: Water service in Cumberland.

Deline, 1992f (TRCC). Telecon memo with Edward Girard, Principle Sanitarian, Public Water Supplies, Rhode Island Department of Health, March 17, 1992.

Deline, 1992g (TRCC). Telecon memo with Edward M. Salzillo, Executive Vice President, International Data Sciences, Inc. January 16, 1992.

Deline, 1992h (TRCC). Telecon memo with Edward M. Salzillo, Executive Vice President, International Data Sciences, Inc. February 19, 1992.

Deline, 1992i (TRCC). Telecon memo with Edward M. Salzillo, Executive Vice President, International Data Sciences, Inc. March 2, 1992.

ERA, 1990. Phase 2 Environmental Site Assessment of International Data Sciences, Inc., 7 Wellington Road, Lincoln, RI. Prepared by Environmental Resource Associates, Inc., Warwick, RI. March 1990.

FEMA, 1982a. Flood Insurance Rate Map, Town of Lincoln, Rhode Island, Providence County, Map Index for Community Panel Numbers 445400 0001-0009. Federal Emergency Management Agency, August 2, 1982.

FEMA, 1982b. Flood Insurance Rate Map, Town of Lincoln, Rhode Island, Providence County, Community Panel Number 445400 0002 B. Federal Emergency Management Agency, August 2, 1982.

Hayes, 1991. Letter to Mr. Edward M. Salzillo, International Data Sciences from Sharon Hayes, Superfund Support Section, Waste Management Division, U.S. EPA, Region I. July 10, 1991.

Hayes, 1992. Letter to Mr. Edward M. Salzillo, International Data Sciences from Sharon Hayes, Superfund Support Section, Waste Management Division, U.S. EPA, Region I. February 14, 1992.

Lincoln, 1991. Lincoln Water Commission, Water Consumption - 1991.

NUS, 1991. Final Site Discovery, International Data Sciences, Inc., North Central Industrial Park, Lincoln, RI, TDD No. F1-9006-18. NUS Corporation, June 28, 1991.

RIDA, 1988. Water Supply Policies for Rhode Island; State Guide Plan Element 721; Division of Planning: Rhode Island Department of Administration, March, 1988.

RI DEM, 1982. Investigation of Ground Water Contamination at the North Central Industrial Air Park, Lincoln, Rhode Island. Rhode Island Department of Environmental Management. November 24, 1982.

RI DEM, 1987. Generator Biennial Hazardous Report for 1987. Rhode Island Department of Environmental Management. July 8, 1988.

RI DEM, 1989. Rhode Island Department of Environmental Management, Biennial Report for the year 1989. April 2, 1990.
RI DEM, 1990. Rhode Island Department of Environmental Management, inter-office memo to A, Good from J. Ball. RE: Wellington Road leach field. January 5, 1990.

TRCC, 1992a. Field Log Book, International Data Sciences, Inc., Preliminary Assessment Onsite Reconnaissance. March 3, 1992.

TRCC, 1992b. Field Log Book, Crownmark Corp. Preliminary Assessment Onsite Reconnaissance. February 20, 1992.

TRCC, 1992c. Field Log Book, Lot 158, Town of Lincoln, Preliminary Assessment Onsite Reconnaissance. February 13, 1992.

USDA, 1981. Soil Survey of Rhode Island. U.S. Department of Agriculture, Soil Conservation Service. July 1981.

USDC, 1991. 1990 Census of Population and Housing Summary Population and Housing Characteristics for Rhode Island. U.S. Department of Commerce, Economics and Statistics Administration, Bureau of the Census. July 1991.

U.S. Dept. of the Interior, 1975a. National Wetlands Inventory Map, Pawtucket, RI - Mass, United States Department of the Interior, Fish and Wildlife Service. 1975.

U.S. Dept. of the Interior, 1975b. National Wetlands Inventory Map, Providence, RI, United States Department of the Interior, Fish and Wildlife Service. 1975.

U.S. Dept. of the Interior, 1975c. National Wetlands Inventory Map, North Scituate, RI, United States Department of the Interior, Fish and Wildlife Service. 1975.

U.S. Dept. of the Interior, 1975d. National Wetlands Inventory Map, Georgiaville, RI, United States Department of the Interior, Fish and Wildlife Service. 1975.

USGS, 1949a, Surficial Geology, Pawtucket Quadrangle, Rhode Island-Massachusetts. U.S. Geological Survey, Geologic Quadrangle Maps of the United States. 1949.

USGS, 1949b. Bedrock Geology, Pawtucket Quadrangle, Rhode Island-Massachusetts. U.S. Geological Survey, Geologic Quadrangle Maps of the United States. 1949.

USGS, 1975a. Pawtucket Quadrangle, Rhode Island. U.S. Geologic Survey, 7.5 Minute Series Topographic Map, 1949, photorevised 1970 and 1975.

USGS, 1975b. Georgiaville Quadrangle, Rhode Island. U.S. Geologic Survey, 7.5 Minute Series Topographic Map, 1954, photorevised 1970 and 1975.

USGS, 1975c. Providence Quadrangle, Rhode Island. U.S. Geologic Survey, 7.5 Minute Series Topographic Map, 1957, photorevised, 1970 and 1975.

USGS, 1975d. North Scituate Quadrangle, Rhode Island. U.S. Geologic Survey, 7.5 Minute Series Topographic Map, 1955, photorevised 1970 and 1975.

USGS, 1984. Providence Quadrangle, Rhode Island-Massachusetts-Connecticut, 30 by 60 Minute Quadrangle. U.S Department of Interior, Geological Survey, 1984.

APPENDIX A

BORING LOGS AND ANALYTICAL DATA

Source: **Phase 2 Environmental Site Assessment of International Data Sciences, Inc., 7 Wellington Road, Lincoln, Rhode Island. Prepared by Environmental Resource Associates, Inc., Warwick, RI. March 1990**